Draft 9/15/2014

Pesticides in Forestry

Issue: In 1998, 2004, and 2013, EPA and NOAA determined that Oregon's has not met an additional forestry management measure for adequate spray buffers for aerial application of herbicides on Type N streams. Given information and clarification received in the public comment period, should EPA and NOAA approve or disapprove the program?

Background:

Additional Management Measures for Forestry

EPA and NOAA's decision to place additional management measures for forestry arose from NMFS' proposal to list coastal coho as threatened under ESA in July 1995. The State initiated a Coastal Salmon Restoration Initiative (CSRI) often called "The Oregon Plan" in October 1995. This was a multi-agency statewide effort to evaluate the health of salmon, forestry practices and other processes harming salmon in Oregon coastal regions. The Plan described proposed and voluntary conservation measures in Oregon's programs as an alternative to NMFS listing coastal coho salmon under ESA. The CSRI was completed in March 1997, and in May 1997, NMFS withdrew its proposal to list coastal coho based on the Oregon Plan. NRDC challenged this decision, and in June 1998, the U.S. District Court overturned NMFS' decision stating that NMFS could not rely on proposed and voluntary conservation measures as a basis for not listing species. In August 1998, NMFS listed coastal coho as threatened under ESA.

The 1997 Oregon Plan comprised the work of scientists in state agencies and academic institutions over two years to evaluate the effects of forestry and other practices on salmon. It identified causes of degradation to salmon habitat and salmon health from forestry practices and recommended actions by ODF and other agencies for improvement. Forestry dominates the land use in Oregon's coastal areas, so many of the recommendations in the Oregon Plan relate to ODF and improvements to forestry practices.

Basis for Adding Adequacy of Spray Buffers for Aerial application of herbicides on Type N Streams

While harmful impacts to salmon from roads, landslides, and lack of riparian protections are mentioned in many reports and early on in the CSRI process, a September 10, 1996 NMFS memo refers for the first time to "Forest Chemical Applications" in proposed rules by ODF in the CSRI, to change the current chemical application rules for forestry for aerial application of fungicides and non-biological insecticides to 300 feet on Type F and Type D streams and to 60 feet on Type N streams. ODF does not propose buffers for aerial application of herbicides.

Subsequent communications between EPA, NOAA and the State begin to refer to the lack of spray buffers for aerial application of herbicides on Type N streams. NMFS developed a White Paper on July 2, 1996 with recommendations for ODF to address in the CSRI that "A pesticide management proposal should address concerns relating to the lack of buffers around riparian areas. Aerial application of pesticides and herbicides (as well as such chemicals as runoff), has the potential to severely impact salmonid stocks." NMFS expresses specific concern about "… the level of protection of Type N streams from exposure to herbicides or pesticides…" NMFS appears to cite a 1994 report on salmon in western Oregon and northern California, which indicates that the pesticides and fertilizers are applied at frequencies that indicate a potential for concern, and that fish are sensitive to some artificial chemicals (Botkin, 1994). In a 9/1/996 draft of the CZARA rationale, the adequacy of pesticide spray buffers for Type N streams appears for the first time and is carried forward until the final 1/19/98 determination.

1998 Additional Management Measure for Pesticides in Forestry

In EPA and NOAA's 1/13/1998 rationale, the agencies concluded that "areas where existing practices under the FPA and FPR should be strengthened to attain water quality and standards and fully support beneficial uses … include … the adequacy of stream buffers for application of certain chemicals." More specifically, the rationale states that Oregon's program "did not require buffers for aerial application of herbicides or fertilizers for type N (non-fish bearing) streams" on forestlands. The rationale states that in the coastal nonpoint management area, non-fish bearing streams comprise 60-70% of the total stream length, and while new rules require a 60-foot buffer on Type N streams for aerial application of non-biological insecticides and fungicides, "the rules do not restrict herbicides, which would appear to leave type N streams still at risk."

Factors to Consider:

The main factors to consider in our action are as follows:

1) We have disapproved the adequacy of Oregon's spray buffers for aerial application of herbicides for forestland since 1998. We have reaffirmed this decision in 2001, 2004, and mostly recently in 2013. The program has not changed since 1998. The most recent change in FPA for spray buffers occurred in 1997, and pesticide litigation has affected buffers for only three herbicides. We also have not received new information that would indicate that EPA and NOAA should not have placed this measure on Oregon.
2) Pesticides is a highly visible issue in Oregon. 35 of 85 comments we received related to comments on EPA and NOAA's pesticide determination. There are several ongoing investigations in the Oregon coastal nonpoint management area concerning human health exposure to aerial application of herbicides.
3) Neighboring states have some type of buffer protection for Type N streams. Washington has both riparian and spray buffer protections. Washington's spray buffer for aerial application of herbicides is 50 feet (WAC-222-38-040). Idaho has riparian and spray buffers for non-fish bearing streams (Class II waters) of 100 feet (IAR 20-02-01). California has riparian buffers for non-fish bearing streams, and spray buffers may be designated by local agricultural commissioners.
4) Oregon has neither riparian or spray buffers leaving Type N streams particularly vulnerable. Herbicides applied aerially on Type N streams can be transported downstream to fish-bearing streams or drinking water supplies, potentially impacting salmonids and other aquatic life (Botkin, 1993). Herbicides also have potential harmful secondary effects on salmon habitat by reducing near stream vegetation (Norris et al, 1991).
5) Type N streams comprise 60-70% of stream length in the Oregon coastal area. Coastal coho are listed as threatened under ESA, and there are many other salmonids in the coastal nonpoint management area.
6) Oregon's coastal nonpoint program relies on the State's Pesticide Control Law at ORS 634, OAR 603-57, best management practices set by the ODA, and FIFRA for managing aerial application of herbicides on small non-fish bearing streams. For buffers, the State relies on FIFRA labels (and ODA to enforce them) to protect non-fish bearing streams for managing aerial application of herbicides on small non-fish bearing streams.
7) **Ex. 5 - Deliberative**

8) Overall, ODA has a robust FIFRA inspection and enforcement program appears to be well-implemented by ODA. ODF and ODA have infrastructure in place to communicate with each other to track applicators. There is a gap in ODF notifications for ensuring that applicators follow FIFRA labels with regards to Type N streams.
   There is a lack of monitoring to assess the effects of aerial application of herbicides on Type N streams for forestry uses. There are some studies on pesticides on fish-bearing streams, and supporters of disapproving and approving the program have cited the same studies.
9) Based on public comments, aerial application of herbicides on Type N streams may be occurring on forested areas even in instances where FIFRA labels prohibit application to waters. See attachment from Peter Leinenbach.
10) Comments from the State, public and organizations were conflicting and inconclusive. There were no studies or data on herbicides in non-fish bearing streams in the coastal nonpoint management area. The State did not offer new information on policies to protect Type N streams from aerial application of herbicides, though subsequent clarifications on ODA's and ODF's programs have helped us understand better how the State regulates aerial application of herbicides on Type N streams.

Impact or significance of the issue

Type N streams compose 60-70% of the stream length in the coastal nonpoint management area. There are no required riparian buffers for forest harvests on Type N streams, and in some areas, trees can be harvested up to the stream banks.Since there are no spray buffers, herbicides applied aerially can be delivered directly into streams which then eventually flow into fish-bearing streams where listed coastal coho and other fish species live and can be harmed.

Local citizens, environmental groups, state agencies, and industry will scrutinize our decision carefully because of ongoing concerns, investigations, or enforcement with public health exposure concerns from aerial drift of herbicides in several places in Oregon, including Triangle Lake. Also, there continues to be litigation in pesticides on labeling requirements and ESA species and a separate long-term multi-agency workgroup that is attempting to address those issues.

Constraints

Ex. 5 - Deliberative

Who is impacted by the issue?

- Aquatic life and/or local landowners adjacent to areas where aerial application of herbicides occur
- EPA Pesticides Program and NMFS working on pesticide risk assessments and litigation

What are the risks of not resolving the issue?

We must take a final action by January 30, 2015 as agreed upon with NWEA.

Recommendations and Next Steps

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Draft 9/1541/2014

Pesticides in Forestry

Issue: In 1998, 2004, and 2013, EPA and NOAA determined that Oregon's has not met an additional forestry management measure for adequate spray buffers for aerial application of herbicides on Type N streams. Given information and clarification received in the public comment period, should EPA and NOAA approve or disapprove the program? ~~Should EPA and NOAA take a "hard" disapproval action with specific guidelines for the State to have an approvable program, a "soft" disapproval action that maintains similar language from previous determinations that waits until pesticides litigation and other studies are completed, or an approval action?~~

Background:

Additional Management Measures for Forestry

Formatted: Font: Italic

EPA and NOAA's decision to place additional management measures for forestry arose from NMFS' proposal to list coastal coho as threatened under ESA in July 1995. The State initiated ~~its~~ a Coastal Salmon Restoration Initiative (CSRI) often called "The Oregon Plan" in October 1995. This was a multi-agency statewide effort to evaluate the health of salmon, forestry practices and other processes harming salmon in Oregon coastal regions. The Plan described proposed and voluntary conservation measures in Oregon's programs as an alternative to NMFS listing coastal coho salmon under ESA. The CSRI was completed in March 1997, and in May 1997, NMFS withdraews its proposal to list coastal coho based on the Oregon Plan. NRDC challenged this decision, and in June 1998, the U.S. District Court overturned NMFS' decision stating that NMFS could not rely on proposed and voluntary conservation measures as a basis for not listing species. In August 1998, NMFS listed coastal coho as threatened under ESA.

The 1997 Oregon Plan comprised the work of scientists in state agencies and academic institutions over two years to evaluate the effects of forestry and other practices on salmon. It identified causes of degradation to salmon habitat and salmon health from forestry practices and recommended actions by ODF and other agencies for improvement. Forestry dominates the land use in Oregon's coastal areas, so many of the recommendations in the Oregon Plan relate to ODF and improvements to forestry practices.

Basis for Adding Adequacy of Spray Buffers for Aerial application of herbicides on Type N Streams

Formatted: Font: Italic

While harmful impacts to salmon from roads, landslides, and lack of riparian protections are mentioned in many reports and early on in the CSRI process, a September 10, 1996 NMFS memo refers for the first time to "Forest Chemical Applications" in proposed rules by ODF in the CSRI, to change the current chemical application rules for forestry for aerial application of fungicides and non-biological insecticides to 300 feet on Type F and Type D streams and to 60 feet on Type N streams. ODF does not propose buffers for aerial application of herbicides.

Subsequent communications between EPA, NOAA and the State begin to refer to the lack of spray buffers for aerial application of herbicides on Type N streams. NMFS developed a White Paper on July 2, 1996 with recommendations for ODF to address in the CSRI that "A pesticide management proposal should address concerns relating to the lack of buffers around riparian areas. Aerial application of pesticides and herbicides (as well as such chemicals as runoff), has the potential to severely impact salmonid stocks." NMFS expresses specific concern about "… the level of protection of Type N streams from exposure to herbicides or pesticides…";~~.~~ NMFS appears to cite a 1994 report on salmon in western Oregon and northern California, which indicates that the pesticides and fertilizers are applied at frequencies that indicate a potential for concern,

and that fish are sensitive to some artificial chemicals (Botkin, 1994). In a 9/1/996 draft of the CZARA rationale, the adequacy of pesticide spray buffers for Type N streams appears for the first time and is carried forward until the final 1/19/98 determination.

1998 Additional Management Measure for Pesticides in Forestry

Formatted: Font: Italic

In EPA and NOAA's 1/13/1998 ~~and 12/20/2013~~ rationale~~s~~, the agencies concluded that "areas where existing practices under the FPA and FPR should be strengthened to attain water quality and standards and fully support beneficial uses … include … the adequacy of stream buffers for application of certain chemicals." More specifically, the rationale states that Oregon's program "did not require buffers for aerial application of herbicides or fertilizers for type N (non-fish bearing) streams" on forestlands. The rationale states that ~~one of the areas the~~ State ~~at needed to be addressed in the additional forestry management measures to attain and maintain water quality standards and support beneficial use was the lack of adequate spraytream buffers from aerial application of herbicides on non-fish bearing streams.~~ ~~I~~in the coastal nonpoint management area, non-fish bearing streams comprise 60-70% of the total stream length, and while new rules require a 60-foot buffer on Type N streams for aerial application of non-biological insecticides and fungicides, "the rules do not restrict herbicides, which would appear to leave type N streams still at risk."

Factors to Consider:

Formatted: Font: Italic

~~Oregon also does not require riparian buffers for forest harvests on non-fish bearing streams, so trees can be harvested up to the stream banks along non-fish bearing streams. Herbicides applied aerially can enter into these streams which then enter fish-bearing streams or drinking water supplies, potentially impacting designated uses such as drinking water and salmon habitat, including for endangered and threatened coastal coho and other salmonids. This condition was placed on Oregon because of concerns from the Coastal Salmon Restoration Initiative (CSRI) which evaluated salmon habitat and issued recommendations on ways to improve it. EPA and NOAA added this condition in the CZARA determination as part of the additional forestry management measures because it indicated that CZARA recommends a 50' buffer to protect all streams (verify document).~~

~~For aerial application of herbicides on small non-fish bearing streams, Oregon's coastal nonpoint program relies on the State's Pesticide Control Law at ORS 634, OAR 603-57, best management practices set by the ODA, and FIFRA.~~

The main ~~challenges~~ factors to consider in our ~~with~~ action are as follows: ~~Oregon's program in how it manages aerial application of herbicides are:~~

1) We have disapproved the adequacy of Oregon's spray buffers for aerial application of herbicides for forestland since 1998. We have reaffirmed this decision in 2001, 2004, and mostly recently in 2013. The program has not changed since 1998. The most recent change in FPA for spray buffers occurred in 1997, and pesticide litigation has affected buffers for only three herbicides. We also have not received new information that would indicate that EPA and NOAA should not have placed this measure on Oregon.
2) Pesticides is a highly visible issue in Oregon. 35 of 85 comments we received related to comments on EPA and NOAA's pesticide determination. There are several ongoing investigations in the Oregon coastal nonpoint management area concerning human health exposure to aerial application of herbicides.
3) Neighboring states have some type of buffer protection for Type N streams. Washington has both riparian and spray buffer protections. Washington's spray buffer for aerial application of herbicides is 50 feet (WAC-222-38-040). Idaho has riparian and spray buffers for non-fish bearing streams (Class II

waters) of 100 feet (IAR 20-02-01). California has riparian buffers for non-fish bearing streams, and spray buffers may be designated by local agricultural commissioners.

4) Oregon has neither riparian or spray buffers leaving Type N streams particularly vulnerable. Herbicides applied aerially on Type N streams can be transported downstream to fish-bearing streams or drinking water supplies, potentially impacting salmonids and other aquatic life (Botkin, 1993). Herbicides also have potential harmful secondary effects on salmon habitat by reducing near stream vegetation (Norris et al, 1991).

5) Type N streams comprise 60-70% of stream length in the Oregon coastal area. Coastal coho are listed as threatened under ESA, and there are many other salmonids in the coastal nonpoint management area. ~~Oregon also does not require riparian buffers for forest harvests on non-fish bearing streams, so trees can be harvested up to the stream banks along non-fish bearing streams. Herbicides applied aerially can enter into these streams which then enter fish-bearing streams or drinking water supplies, potentially impacting designated uses such as drinking water and salmon habitat, including for endangered and threatened coastal coho and other salmonids.~~

6) ~~For aerial application of herbicides on small non-fish bearing streams,~~ Oregon's coastal nonpoint program relies on the State's Pesticide Control Law at ORS 634, OAR 603-57, best management practices set by the ODA, and FIFRA for managing aerial application of herbicides on small non-fish bearing streams. For buffers, the State relies on FIFRA labels (and ODA to enforce them) to protect non-fish bearing streams for managing aerial application of herbicides on small non-fish bearing streams.

7)

Ex. 5 - Deliberative

~~1)~~8) Overall, ODA has a robust FIFRA inspection and enforcement program appears to be well-implemented by ODA. ODF and ODA have infrastructure in place to communicate with each other to track applicators. There is a gap in ODF notifications for ensuring that applicators follow FIFRA labels with regards to Type N streams.

~~2)~~ There is a lack of monitoring to assess the effects of aerial application of herbicides on Type N streams for forestry uses. There are some studies on pesticides on fish-bearing streams, and supporters of disapproving and approving the program have cited the same studies. ~~The State's Forest Practices Act goes above and beyond FIFRA with spray buffers for has protections for aerial application of herbicides on fish-bearing streams and drinking water streams and spray buffers for fungicides and non-biological insecticides on Type N streams. However, there are none for Type N streams where aerial application of herbicides occur, except for 10-foot spray and vegetation buffers on very limited areas in the South Coast [citation]. (there may be some? Need to confirm). In contrast, Washington requires a 50-foot spray buffers for all pesticides on non-fish bearing streams (WAC-). Idaho requires a 100-foot spray buffer on non-fish bearing streams . California relies on a narrative description that buffers should be determined to protect beneficial uses.~~

~~3) There are no riparian buffers for harvesting on Type N streams under Oregon's Forest Practices Act. This means that Type N streams do not have riparian or spray buffers and may be more vulnerable to herbicides. See photos from Peter Leinenbach.~~

Ex. 5 - Deliberative

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Indent: Left: 0.5", No bullets or numbering

Formatted: Bullets and Numbering

Ex. 5 - Deliberative

5

9) Based on public comments, aerial application of herbicides on Type N streams may be occurring ~~regularly~~ on forested areas even in instances where~~that~~ FIFRA labels prohibit application to waters. See attachment from Peter Leinenbach.

~~6)~~

10) ~~The c~~Comments from the State, public and organizations ~~we received~~ were conflicting and inconclusive. There were no studies or data on herbicides in non-fish bearing streams in the coastal nonpoint management area. The State ~~also~~ did not offer ~~any~~ new information on policies to protect Type N streams from aerial application of herbicides, though subsequent clarifications on ODA's and ODF's programs have helped us understand better how the State regulates aerial application of herbicides on Type N streams.

Formatted: Indent: Left: 0.5"

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: List Paragraph, Numbered + Level: 1 + Numbering Style: 1, 2, 3, … + Start at: 1 + Alignment: Left + Aligned at: 0.25" + Indent at: 0.5"

Impact or significance of the issue

Type N streams compose 60-70% of the stream length in the coastal nonpoint management area. There are no required riparian buffers for forest harvests on Type N streams, and in some areas, trees can be harvested up to the stream banks.~~, and h~~Since there are no spray buffers, herbicides applied aerially can be delivered directly into streams which then ~~enter fish-bearing streams where aquatic life can be harmed. These all~~ eventually flow into fish-bearing streams where listed coastal coho and other fish species live and can be harmed.

~~Tangentially, l~~Local citizens, environmental groups, state agencies, and industry will scrutinize our decision carefully because of ongoing concerns, investigations, or enforcement with public health exposure concerns from aerial drift of herbicides in several places in Oregon, including ~~the~~ Triangle Lake ~~area~~. Also, there continues to be litigation in pesticides on labeling requirements and ESA species and a separate long-term multi-agency workgroup that is attempting to address those issues.

Constraints

Ex. 5 - Deliberative

Who is impacted by the issue?

- Aquatic life and/or local landowners adjacent to areas where aerial application of herbicides occur
- EPA Pesticides Program and NMFS working on pesticide risk assessments and litigation

What are the risks of not resolving the issue?

We must take a final action by January 30, 2015 as agreed upon with NWEA.

Recommendations and Next Steps

Ex. 5 - Deliberative

Formatted: Font: (Default) Times New Roman, 12 pt

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Formatted: Font: Bold

Formatted: Font: Bold

Formatted: Font: Bold

Formatted

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: No underline

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Normal, No bullets or numbering

Formatted

Formatted: Underline

Formatted: Underline

Formatted: Underline

Formatted: Underline

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: Indent: Left: 0.5", No bullets or numbering

Formatted: Font: (Default) Times New Roman, 12 pt, No underline

Ex. 5 - Deliberative

Formatted: Bullets and Numbering

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

ormatted: Font: (Default) Times New Roman, 12 pt

Formatted: Normal, No bullets or numbering

Ex. 5 - Deliberative

Formatted: Indent: Left: 1", No bullets or numbering

Formatted: Font: (Default) Times New Roman, 12 pt

Formatted: List Paragraph, Indent: Left: 1"

Ex. 5 - Deliberative

Formatted: Font: (Default) Times New Roman, 12 pt

1) FPA's Notification Rules – required for every applicator to list possible pesticides that may be applied. Current notifications specify spray buffer protections on Type F and Type D streams, then generic references to FIFRA and other FPA rules. No mention of reminder for Type N streams though notifications indicate aerial application on Type N streams of herbicides. Fix: Include checkbox that explicitly has applicator

2) Education and Outreach – Oregon has a certified program in place for education and outreach. Includes XX… State docs have pretty good program.

3) Monitoring – none right now for aerial application of herbicides on Type N streams in coastal area; do this; work with EPA and NOAA.

4) ODA and ODF integration – PARC; other outreach strategies for

5) Tracking -

Include diagrams of what's happening in Oregon; notification letter

Ex. 5 - Deliberative

Check references:

Meghan, W.F. 1980. Nonpoint source pollution from forestry activities in the Western United States: Results of recent research and research needs. In *U.S. Forestry and Water Quality: What Course in the 80s?* Proceedings of the Water Pollution Control Federation Seminar, Richmond, VA, June 19, 1980, pp. 92-151.

Norris, L.A., H.W. Lorz, and S.V. Gregory. 1991. *Forest Chemicals. Influences of Forest and Rangeland Management on Salmonid Fishes and Their Habitats.* American Fisheries Society Special Publication 19, pp. 207-296. (link on-line: citations for effects of spray buffers on salmonids).

Riekerk, H., D.G. Neary, and W.J. Swank. 1989. *The magnitude of upland silviculture nonpoint source pollution in the South*. In *Proceedings of the Symposium: Forested Wetlands of the Southern United States*, July 12-14, Orlando, FL, pp. 8-18.

California – Department of Pesticide Regulation

Title 3 of the California Code of Regulations (3 CCR) deals with pesticides and pest control operations (http://www.cdpr.ca.gov/docs/legbills/regshome.htm). Regulations are designed to interpret and carry out the requirements of the laws. Sidebar 2 details the purposes of pesticide and pest control laws and regulations.

The county agricultural commissioner may adopt additional regulations applicable to his or her county. These supplement the regulations adopted by the Director of DPR and may govern the conduct of pest control operations as well as the records and reports of those operations. The Director of DPR must approve each regulation adopted by a county agricultural commissioner before it becomes operative.

Laws or regulations change when new situations arise that are not covered by existing laws and regulations. For example, pesticides and pesticide application equipment are con- stantly being improved or modified. Some improvements often require people to use pes-

FIGURE 1.6

The U.S. Environmental Protection Agency works with the California Depart- ment of Pesticide Regulation in assur- ing that pesticides are safely and legally used.

ticides differently. Pest problems and pest management techniques usually differ from year to year and affect how people use pesticides. In addition, as regulators identify new health and environmental problems, they create or modify laws or regulations to deal with them. For instance, the federal Worker Protection Standard was a change in the Federal Insecti- cide, Fungicide, and Rodenticide Act (FIFRA) that strengthened requirements to protect people who handle pesticides or work in pesticide-treated areas.